

AF/1713

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

NAGY ET AL.

Serial No.: 08/872,659

Filed: June 10, 1997

For: TRANSITION METAL CATALYSTS CONTAINING
BIDENTATE LIGANDS AND METHOD OF USING
AND PREPARING SAME

Attorney Docket No.: 016199/1110 / LYON 0103 PUS

Group Art Unit: 1713

Examiner: Roberto Rabago

#22

APPELLANTS' REPLY BRIEF

Box AF
Commissioner for Patents
United States Patent and Trademark Office
Washington, D.C. 20231

Sir:

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The correction of the claims by the Examiner is noted and appreciated. The Examiner's comment relative to the "Proviso" of claim 73 not being part of the claims (Examiner's Answer, page 3, § 8) is incorrect, however. The proviso is clearly part of the claim. Due to a typographical error, the claim contained two periods, one after "the oxidation state of M", which should have been a coma, and one at the end of the claims. This error was never brought to Appellants' attention. The claim had never been rejected for this reason, nor objected to. Appellants therefore respectfully request the Examiner to amend the claim by removing the penultimate period. The claim has been examined on the basis of containing the proviso, and to delete it now would not only raise new issues not previously raised by the

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Examiner nor addressed by Appellants, but would also let form triumph over substance. A corrected copy of the claims, including the proviso, with the period amended to a coma, is attached.

The following comments are in order.

Issue A

With respect to the rejection for obviousness over *Reichle*, the claims have not been rejected under 35 U.S.C. § 102(e), but under 35 U.S.C. § 103(a). In this rejection, the Office has relied on § 102(e) as allegedly permitting *Reichle* to be cited as prior art. Appellants's position is that under the facts of this case, *Reichle* cannot be used to support a rejection under 35 U.S.C. § 103(a) through § 102(e).

The Examiner cites several MPEP sections in support of his characterization of Appellants' argument as "baseless" (Answer, page 5, line 9). The MPEP is not controlling authority. The patent law is controlled by the common law, by the Patent Statutes (Title I, 35 U.S.C.) and by the Federal Rules (37 C.F.R.), the latter governed by the Statutes as well.

Section 102(e) of 35 U.S.C. was enacted as codifying the *Milburn* case. It was not created to change or broaden the law; only to codify it. Therefore, its scope is only as broad as the *Milburn* case itself.

The *Milburn* case and its legislative codification have been oft criticized by the Courts and by commentators alike. *Milburn* rests upon a fiction which does not apply to the instant case. Even were the rejection one for anticipation under 35 U.S.C. § 102(e), the statute would arguably not apply, since the fiction that *Reichle* could have issued on its filing date, the entire basis of *Milburn* and its codification as 35 U.S.C. 102(e), is wholly absent. Due to interfering subject matter, *Reichle* could not have issued on its filing date. *Reichle* also could

not have issued on its filing date due to unpatentable subject matter. No patentable claim was present in *Reichle* as filed.

Moreover, 35 U.S.C. § 102(e) requires that the reference "describe" the invention in the manner required by § 102 ("novelty"; "anticipation"). The Examiner has already indicated that *Reichle* cannot be asserted for anticipation under 35 U.S.C. § 102(e):

Absent the patent application (hereinafter, *Nagy I*), the reference would have been applied under 35 U.S.C. §102(e) because the Examples show embodiments within the claimed scope. However, as these same embodiments were disclosed in *Nagy I*, it would appear that Applicant has established priority to those species. (Emphasis added).

Answer, page 4, lines 5-9. Therefore, this subject matter of *Reichle* could not have issued on the filing date, because it was, as the Examiner states clearly unpatentable to *Reichle*. The Office is only empowered to allow patentable subject matter.

This is not a case where a reference is a § 102(e) reference and is being used in an obviousness rejection in combination with another reference. Here, there is no other reference. How can a reference, standing alone, fail to qualify as a § 102(e) reference because its subject matter is clearly and unambiguously antedated by *Nagy I*, and yet be a § 103(a) reference through § 102(e)?

Milburn, and its codification as § 102(e) both rest on the assumption that the Office could be theoretically 100% efficient, and issue a patent the same day as the application is received. Here, this fiction is totally absent; not only would the claims have been subject to an interference, but moreover, as the Office itself clearly states, the claims could not have issued in any case, because they were unpatentable over *Nagy I*. Therefore, under the facts

of this case, *Reichle* cannot be a § 102(e) reference which could be asserted under 35 U.S.C. § 103(a).

Issue B

Appellants have asserted that *Nagy I*, together with its Declaration submitted upon filing the application, is equivalent to a Declaration under 37 C.F.R. § 1.131, and is sufficient to remove *Reichle* as a reference, even were *Reichle* a proper reference under 35 U.S.C. § 103(a)/102(e).

The Office has denied that the *Nagy I* application is sufficient in this respect. The Office states that the disclosure of *Nagy I* allegedly is less than that of the reference because *Nagy I* discloses only titanium, zirconium, and hafnium in the +4 state, while the present claims are broader. This is manifestly incorrect. Note the first paragraph of the *Nagy* patent, for example, which states that the invention relates to the "polymerization of ethylene using transition metal catalysts with bidentate ligands" There is no limitation in this passage to any specific group of transition metals. The same passage is repeated in the "Summary of the" Invention. While the Examples and claims are limited to Ti, Zr, and Hf, the most commonly used transition metals in transition metal-containing ethylene polymerization catalysts, the specification as a whole is clearly broader. It was, in part, the recognition that Appellants had not claimed all they were entitled to claim in *Nagy I*, which prompted the filing of *Nagy II*.¹

For this and for other reasons as well, the Examiner's reliance on *In re Clarke* is misplaced. The parent application contains specific disclosure as broad as *Reichle*. However, in focusing on *In re Clarke*, the Examiner has completely ignored *In re Hostettler*, and the portions of *Clarke* which mirror *Hostettler*:

¹It is noted that all of the examples of *Reichle* are limited to Ti and Zr.

Certainly appellants should not be required to submit facts under Rule 131 showing that they reduced to practice that which is obvious in addition to those facts offered as showing a completion of the invention, for the purposes of antedating a reference. (Emphasis added).

In re Hostettler, 148 U.S.P.Q. 514 (CCPA 1966). Accord, *In re Clarke*, 148 U.S.P.Q. 670 (CCPA 1966). Note *Clarke*, in particular:

We believe the rule in *Stempel* supplements our decision in *In re Shokal*, *supra*, and that the rule for antedating references is not limited to fact situations where the inventor can show priority as to the *identical* compound described in the reference. It seems that in an appropriate case an applicant should not be prevented from obtaining a patent to an invention where a compound described in a reference would have been obvious to one of ordinary skill in the art in view of what the affiant proves was completed with respect to the invention prior to the effective date of the reference. This is particularly true where the inventor had already appreciated that the invention was generic in nature from the work on diverse species and was endeavoring to determine by exercise of reasonable diligence the precise scope of the invention.²

Clarke further states:

It follows from the above views that antedating affidavits must contain facts showing a completion of "the invention" commensurate with the extent the invention is shown in the reference, whether or not it be a showing of the identical disclosure of the reference. In our view, where it can be concluded that facts, offered in a Rule 131 affidavit in support of a general allegation of conception and reduction to practice of the invention, would persuade one of ordinary skill in the art to a reasonable certainty that the applicant possessed *so much of the invention as to encompass the reference disclosure*, then that showing should be accepted as establishing *prima facie* a case of

²Exactly the case here.

inventorship prior to the reference, sufficient for the purpose of overcoming the reference in an ex parte case.

The Examiner states that Appellants have presented is no evidence of such "obviousness" of the subject matter of *Nagy II* over *Reichle*, and that Appellants have argued to the contrary. First, the burden of going forward to establish a *prima facie* case is with the Office, not with Appellants. Second, it is entirely within our Anglo-American jurisprudence to adopt conflicting positions for relief. "Alternative" and not necessarily compatible grounds for relief have always been a part of our legal system, and are literally incorporated in our statutes. Finally, and most importantly, the maintenance of the obviousness rejection by the Office over *Reichle* speaks for itself. If the Office is now asserting that the additional species disclosed and claimed are not obvious over *Reichle*, and not merely obvious variants of those species disclosed in *Nagy I*, then the Examiner should withdraw the rejection for obviousness over *Reichle*. The Office's own contentions re obviousness obviates any need for a further antedating Declaration than the *Nagy I* application itself. The Office's contentions fully meet the *Hostettler/Clarke* requirements of a showing of "that which is obvious" in addition to what has already been disclosed in *Nagy I*. If the Examiner disagrees, he should state on the record what the non-obvious differences are, which would remove this case from the ambit of *Clark* and *Hostettler*. The Office has not done so. The Office has rejected the present claims as obvious over *Reichle*. Appellants have indicated their appreciation of the genericities of the original application (*Nagy I*) and the obviousness of the *Nagy II* claims thereover, by the filing of a terminal disclaimer herein.

The rejections of record must be reversed.

Respectfully submitted,

NAGY ET AL.

By: 

William G. Conger

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Date: February 2, 2001

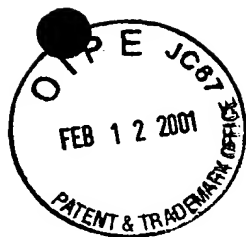
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CLAIMS ON APPEAL

22. The catalyst of claim 71, wherein the sum $a+b \leq 2$ when the oxidation state of M is 4 or less and $a+b \leq 3$ when the oxidation state of M is greater than 4.

23. The catalyst of claim 71, wherein Y is -O-.

24. The catalyst of claim 71, wherein X is halogen.

25. The catalyst of claim 71, wherein X is Cl.

26. The catalyst of claim 71, wherein M is a Group 3 to 7 metal.

27. The catalyst of claim 71, wherein M is a Group 4, 5, or 6 metal.

28. The catalyst of claim 71, wherein M is titanium, zirconium, or hafnium.

29. The catalyst of claim 23, wherein M is titanium, zirconium, or hafnium.

30. The catalyst of claim 25, wherein M is titanium, zirconium, or hafnium.

31. A catalyst composition useful for the polymerization of olefins, comprising a catalyst of claim 71 and an activating co-catalyst.

32. The catalyst composition of claim 31, wherein said co-catalyst comprises an alumoxane or an aluminum alkyl.

33. The catalyst composition of claim 32, wherein said alumoxane comprises (poly)methylalumoxane, ethylalumoxane, or diisobutylalumoxane.

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34. The catalyst composition of claim 31, wherein said co-catalyst is an acid salt containing a non-coordinating inert anion.

35. The catalyst composition of claim 31, wherein said catalyst is a catalyst in which M is Ti, Zr, or Hf; X is halogen; and Y is oxygen.

37. The catalyst composition of claim 72, wherein Y is -O-.

38. The catalyst composition of claim 72, wherein X is halogen.

39. The catalyst composition of claim 72, wherein X is C1.

40. The catalyst composition of claim 72, wherein M is a Group 3 to 7 metal.

41. The catalyst composition of claim 72, wherein M is a Group 4, 5, or 6 metal.

42. The catalyst composition of claim 72, wherein M is titanium, zirconium, or hafnium.

43. The catalyst composition of claim 37, wherein M is titanium, zirconium, or hafnium.

44. The catalyst composition of claim 39, wherein M is titanium, zirconium, or hafnium.

45. The catalyst composition of claim 72, wherein M is Ti, Y is -O-, X is C1, and L is C₇₋₂₀ aralkyl.

46. The catalyst composition of claim 72, wherein said co-catalyst comprises an alumoxane or an aluminum alkyl.

47. The catalyst composition of claim 46, wherein said alumoxane comprises (poly)methylalumoxane, ethylalumoxane, or diisobutylalumoxane.

48. The catalyst composition of claim 72, wherein said co-catalyst is an acid salt containing a non-coordinating inert anion.

49. The catalyst composition of claim 72, wherein said catalyst is a catalyst in which M is Ti, Zr, or Hf; X is halogen; and Y is oxygen.

50. The catalyst composition of claim 45, wherein said co-catalyst comprises an alumoxane or an aluminum alkyl.

51. The catalyst composition of claim 45, wherein said co-catalyst is an acid salt containing a non-coordinating inert anion.

53. In a process for the polymerization of olefins in the presence of an olefin polymerization catalyst, the improvement comprising:

selecting as said olefin polymerization catalyst an olefin polymerization catalyst comprising the catalyst of claim 71.

54. In a process for the polymerization of olefins in the presence of an olefin polymerization catalyst, the improvement comprising:

selecting as said olefin polymerization catalyst an olefin polymerization catalyst comprising the catalyst of claim 23.

55. In a process for the polymerization of olefins in the presence of an olefin polymerization catalyst, the improvement comprising:

selecting as said olefin polymerization catalyst an olefin polymerization catalyst comprising the catalyst of claim 25.

56. In a process for the polymerization of olefins in the presence of an olefin polymerization catalyst, the improvement comprising:

selecting as said olefin polymerization catalyst an olefin polymerization catalyst comprising the catalyst of claim 27.

57. In a process for the polymerization of olefins in the presence of an olefin polymerization catalyst, the improvement comprising:

selecting as said olefin polymerization catalyst an olefin polymerization catalyst comprising the catalyst of claim 73.

58. In a process for the polymerization of olefins in the presence of an olefin polymerization catalyst, the improvement comprising:

selecting as said olefin polymerization catalyst an olefin polymerization catalyst comprising the catalyst composition of claim 31.

59. In a process for the polymerization of olefins in the presence of an olefin polymerization catalyst, the improvement comprising:

selecting as said olefin polymerization catalyst an olefin polymerization catalyst comprising the catalyst composition of claim 32.

60. In a process for the polymerization of olefins in the presence of an olefin polymerization catalyst, the improvement comprising:

selecting as said olefin polymerization catalyst an olefin polymerization catalyst comprising the catalyst composition of claim 33.

61. In a process for the polymerization of olefins in the presence of an olefin polymerization catalyst, the improvement comprising:

selecting as said olefin polymerization catalyst an olefin polymerization catalyst comprising the catalyst composition of claim 34.

62. In a process for the polymerization of olefins in the presence of an olefin polymerization catalyst, the improvement comprising:

selecting as said olefin polymerization catalyst an olefin polymerization catalyst comprising the catalyst composition of claim 35.

63. In a process for the polymerization of olefins in the presence of an olefin polymerization catalyst, the improvement comprising:

selecting as said olefin polymerization catalyst an olefin polymerization catalyst comprising the catalyst composition of claim 72.

64. In a process for the polymerization of olefins in the presence of an olefin polymerization catalyst, the improvement comprising:

selecting as said olefin polymerization catalyst an olefin polymerization catalyst comprising the catalyst composition of claim 37.

65. In a process for the polymerization of olefins in the presence of an olefin polymerization catalyst, the improvement comprising:

selecting as said olefin polymerization catalyst an olefin polymerization catalyst comprising the catalyst composition of claim 39.

66. In a process for the polymerization of olefins in the presence of an olefin polymerization catalyst, the improvement comprising:

selecting as said olefin polymerization catalyst an olefin polymerization catalyst comprising the catalyst composition of claim 41.

67. In a process for the polymerization of olefins in the presence of an olefin polymerization catalyst, the improvement comprising:

selecting as said olefin polymerization catalyst an olefin polymerization catalyst comprising the catalyst composition of claim 44.

68. In a process for the polymerization of olefins in the presence of an olefin polymerization catalyst, the improvement comprising:

selecting as said olefin polymerization catalyst an olefin polymerization catalyst comprising the catalyst composition of claim 45.

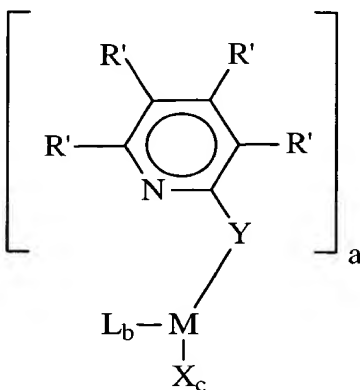
69. In a process for the polymerization of olefins in the presence of an olefin polymerization catalyst, the improvement comprising:

selecting as said olefin polymerization catalyst an olefin polymerization catalyst comprising the catalyst composition of claim 46.

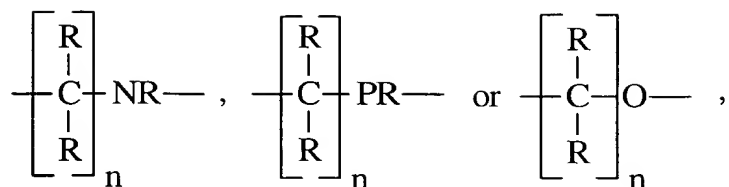
70. In a process for the polymerization of olefins in the presence of an olefin polymerization catalyst, the improvement comprising:

selecting as said olefin polymerization catalyst an olefin polymerization catalyst comprising the catalyst composition of claim 47.

71. A catalyst comprising units of the formula:



where Y is $\begin{array}{cc} \text{R} & \text{R} \\ | & | \\ -\text{O}- & -\text{S}- & -\text{N}- & -\text{P}- \end{array}$

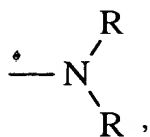


where each R is independently hydrogen, C₁₋₆ alkyl, or C₆₋₁₄ aryl;

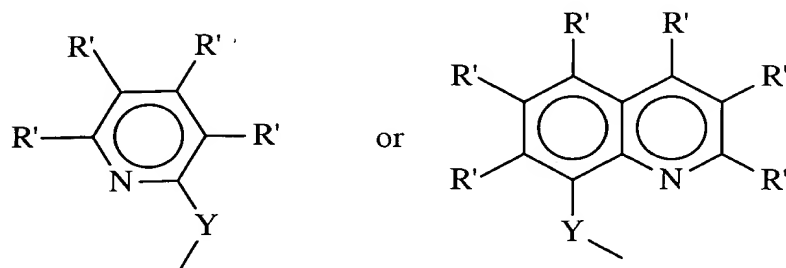
where each R' is independently R, C₁₋₆ alkoxy, C₇₋₂₀ alkaryl, C₇₋₂₀ aralkyl, halogen, or CF₃;

where M is a Group 3 to 10 metal;

where each X is independently halogen, C₁₋₆ alkyl, C₆₋₁₄ aryl, C₇₋₂₀ alkaryl, C₇₋₂₀ aralkyl, C₁₋₆ alkoxy, or



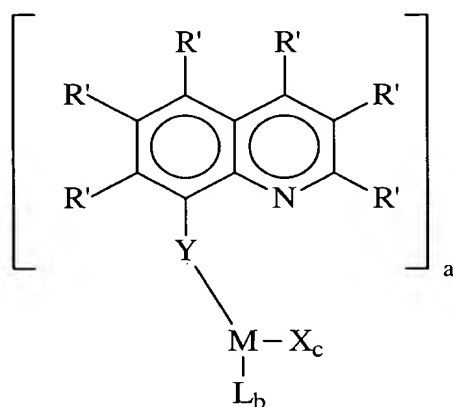
L is X, cyclopentadienyl, C₁₋₆ alkyl-substituted cyclopentadienyl, fluorenyl, indenyl, or



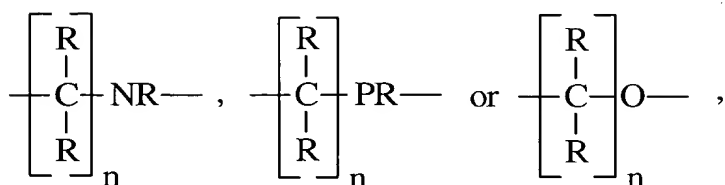
where n is an integer from 1 to 4;

- a is an integer from 1 to 3;
 b is an integer from 0 to 2;
 the sum of $a+b \leq 3$;
 c is an integer from 1 to 6; and
 the sum $a+b+c$ equals the oxidation state of M.

72. A catalyst composition suitable for the polymerization of olefins, comprising an activating co-catalyst and a catalyst of the formula:



where Y is -O-, -S-, $\begin{array}{c} \text{R} \quad \text{R} \\ | \quad | \\ -\text{N}- \\ | \quad | \end{array}$, $\begin{array}{c} \text{R} \quad \text{R} \\ | \quad | \\ -\text{P}- \\ | \quad | \end{array}$,

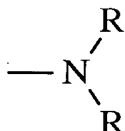


where each R is independently hydrogen, C_{1-6} alkyl, or C_{6-14} aryl;

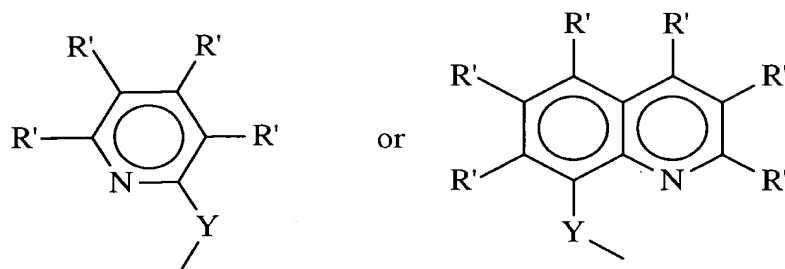
where each R' is independently R, C₁₋₆ alkoxy, C₇₋₂₀ alkaryl, C₇₋₂₀ aralkyl, halogen, or CF₃;

where M is a Group 3 to 10 metal;

where each X is independently halogen, C₁₋₆ alkyl, C₆₋₁₄ aryl, C₇₋₂₀ alkaryl, C₇₋₂₀ aralkyl, C₁₋₆ alkoxy, or



L is X, cyclopentadienyl, C₁₋₆ alkyl-substituted cyclopentadienyl, fluorenyl, indenyl,



where n is an integer from 1 to 4;

a is an integer from 1 to 3;

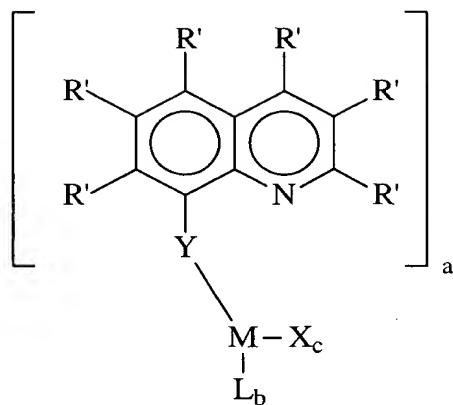
b is an integer from 0 to 2;

the sum of $a + b \leq 3$;

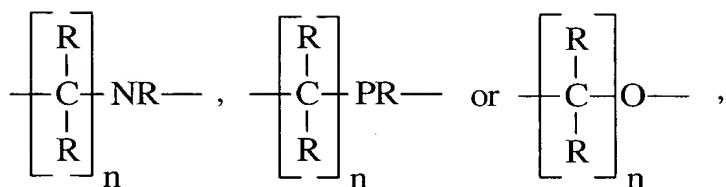
c is an integer from 1 to 6; and

the sum $a + b + c$ equals the oxidation state of M.

73. A catalyst comprising units of the formula:



where Y is -O-, -S-, -N-, -P-,

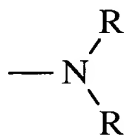


where each R is independently hydrogen, C₁₋₆ alkyl, or C₆₋₁₄ aryl;

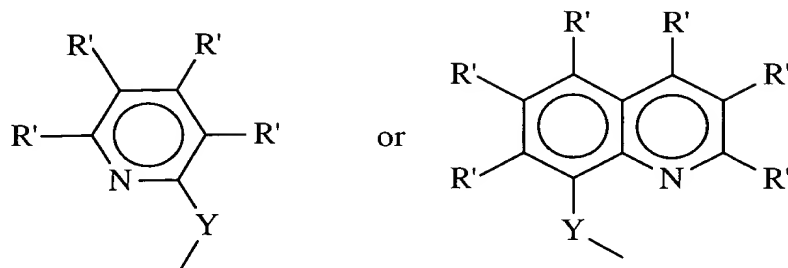
where each R' is independently R, C₁₋₆ alkoxy, C₇₋₂₀ alkaryl, C₇₋₂₀ aralkyl, halogen, or CF₃;

where M is a Group 3 to 10 metal;

where each X is independently halogen, C₁₋₆ alkyl, C₆₋₁₄ aryl, C₇₋₂₀ alkaryl, C₇₋₂₀ aralkyl, C₁₋₆ alkoxy, or



L is X, cyclopentadienyl, C₁₋₆ alkyl-substituted cyclopentadienyl, fluorenyl, indenyl,



where n is an integer from 1 to 4;

a is an integer from 1 to 3;

b is an integer from 0 to 2;

the sum of $a+b \leq 3$;

c is an integer from 1 to 6; and

the sum $a+b+c$ equals the oxidation state of M,

with the proviso that trichlorotitanium 8-quinolate, dichlorotitanium bis(8-quinolate), and monochlorotitanium tris(8-quinolate) are excluded.